MEDICAL CHANNEL

Original Article

PATTERN OF SQUINT PRESENTATION IN PAEDIATRIC EYE DEPARTMENT AT CIVIL HOSPITAL KARACHI

** Tarique Saleem Shaikh, ** Sajida Parveen Shaikh, *** Shehla Dareshani, **** Waheed Ahmed Shaikh*

* FCPS Ophth. Assistant Professor, Department of Ophthalmology Unit-I, Dow University of Health Sciences & Civil Hospital, Karachi. ** FCPS Ophth. Classified Eye Specialist, Assistant Professor, Behria University of Medical and Dental College, Karachi. *** FCPS Ophth., Assistant Professor, Department of Ophthalmology Unit-II, Dow University of Health Sciences & Civil Hospital, Karachi. **** FCPS Ophth., Medical Officer, Department of Ophthalmology Unit-II, Dow University of Health Sciences & Civil Hospital, Karachi.

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Corresponding Author:
DR. TARIQUE SALEEM SHAIKH
H. No. 101/1Second Commercial Street, Phase-IV, DHA, Karachi
Cell: 0333-3003326, 021-35392255
E-mail: drtariqsaleem1971@gmail.com

ABSTRACT

Objectives: To evaluatethe magnitude,and type of strabismus presenting in Pediatric and Orthoptic clinic, Civil Hospital, Karachi in collaboration with Bahria University Medical and Dental College.

Study Design: A retrospective (when you have gone back and checked the records, it becomes retrospective) analytical study was conducted in outpatient, Department of Pediatric Ophthalmology and Orthoptic clinic, Civil Hospital, Karachi.

Place and Duration of Study: Department of Pediatric Ophthalmology and Orthoptic clinic, Civil Hospital, and Dow University of Health Sciences, Karachi in collaboration with Bahria University Medical and Dental College, Karachi, from 2008 to 2012.

Sample size 1170 strabismic patients collected from Pediatric Ophthalmology and Orthoptic clinic in Civil Hospital, Karachi.

Methodology: A retrospective analytical study was conducted at, Pediatric Ophthalmology and Orthoptic clinic in Civil Hospital, Karachi. All patients were registered in our Orthoptic Department.

A detailed orthoptic Performa was filled out including

— Biodata
— History of presenting illness
— History of Glasses wear
— History of patching treatment
— Previous squint surgery and
— Family history of strabismus.

As Orthoptic examination included visual acuity assessment with age appropriate tests. Cover test, prism cover test, extraocular movements, cycloplegic refraction, hand held Slit lamp biomicroscopy and dilated fundus examination.

Results: Overall 1170 patients were divided in 4 age groups. Squint Patients were classified in three groups. One group had horizontal deviations 1074 (91.79%),

that was most common form of strabismus, second group had vertical deviation were 27(2.5%) and third group was patients who were pseudo squint 69(5.89)(it is better to omit this group. Pseudo-squint is not squint. It just appears that way). Statistical analysis was done by using SPSS and simple descriptive analysis was carried out.

Key words: Esotropia (ET), Exotropia (XT) Infantile Esotropia and pseudo strabismus,

INTRODUCTION:

Squint is a misalignment of the eyes in which the visual axes deviates from bifoveal fixation. It can be comitant (non-paralytic) and incomitant (paralytic). Strabismus is the misalignment of one or both eyes either inward (called esotropia), outward (exotropia), upward (hypertropia), or downward (hypotropia). The condition can be constant or parents may only notice it occasionally; for instance, when their child is tired or looking at something very close up. Graham reported manifest squint in 5.4% cases in UK.[1]

Strabismus can be present at birth or develop in childhood. In most cases, the cause is unknown, although children with a family history of strabismus are at an increased risk for it.Most kids are diagnosed between 1 and 4 years of age. Rarely, a child might develop strabismus for the first time after 6 years of age. Without treatment, strabismus can cause permanent vision problems (called lazy eye or amblyopia).

In order for the eyes to move fully, together and in a co-ordinated way, there has to be correct functioning at three levels in the visual system:

- The six extraocular muscles:
- The three cranial nerves:
- The higher brain centres including the three cranial nerve nuclei:

Strabismus can be manifest strabismus or Hetrotropia and latent strabismus called Heterophoria.
Strabismus can also be divided into paretic and non-paretic.
Pseudo-strabismus is a condition when a person's eye appears mis-aligned but with accurate examination no deviation is observed.
Recent evidence indicates that a cause for infantile strabismus may lie with the input that is provided to the visual cortex. When the misalignment of the eyes is large and obvious, the strabismus is called "large-angle," Less obvious eye turns are called small-angle strabismus.
Typically, constant large-angle strabismus does not cause symptoms and usually causes severe amblyopia if left untreated.

In most cases, the only effective treatment for a constant eye turn is strabismus surgery.[2]In concomitant squint, surgery is the last resort!!. Infantile Esotropia needs to be treated early in life to prevent amblyopia.[2] Birsch et al suggest that infants with infantile esotropia of 40 PD or greater presenting at 2-4 months of age are valid candidates for surgical treatment, since early surgical alignment may promote development of at least coarse stereopsis in these infants.[2]

Less noticeable cases of small-angle strabismus are more likely to cause disruptive visual symptoms, especially if the strabismus is intermittent or alternating.. If small-angle strabismus is constant and unilateral, it can lead to significant

TABLE I
PATIENTS ACCORDING TO AGE GROUPS

Age Group	Patients	%
00 — 04	459	39.23
05 – 08	320	27.35
09 – 12	215	18.37
12+	176	15.04
Total	1170	100

TABLE II
PATIENTS ACCORDING TO STRABISMIC GROUPS

Age Group	Patients	%
Horizontal Deviation	1074	91.79
Vertical Deviation	27	2.5
Pesudo Squint	69	5.89
Total	1170	100

TABLE III
ESOTROPIA TYPES

TYPES OF ESOTROPIA	PATIENTS	PERCENTAGE
Concomitant Constant ET	276	23.58%
Infantile Esotropia	161	13.76%
Accomodative ET	144	12.30%
Paralytic ET	60	5.12%
Sensory ET	57	4.87%
Total	698	59.63%

TABLE IV
TYPES OF EXOTROPIA (XT)

Constant (early onset) XT	224	20.8%
Intermittent XT	93	7.94%
Sensory XT	25	2.13%
Paralytic XT	14	1.19%
Total	376	32.06%

amblyopia in the misaligned eye.

METHODOLOGY

This twin- centre study was conducted at Paediatric Ophthalmology and Orthoptic Unit of Department of Ophthalmology Civil Hospital, DUHS, Karachi, in collabration with Bahria University Karachi, during September 2008 to January 2012.All patients were registered in the Orthoptic department.

A detailed orthoptic proforma was filled out including

- Biodata
- History of presenting illness
- Glasses wear
- History of patching treatment
- Previous squint surgery and
- family history of strabismus.

Orthoptic examination included

- Visual acuity assessment with age appropriate tests. Lea gratings, Kay picture test, Lea symbols and ETDRS (logMAR) were used for different age groups.
- For younger age patients who did not cooperate with visual acuity test, density of amblyopia was assessed by CSM (central, steady and maintained) fixation of child uniocularly and binocularly.
- Squint assessment included cover/uncover/alternate cover tests with and without glasses for near and far, prism cover test for near, far and in gazes, Krimsky test for younger children.
- Titmus test and Lang test were used to check stereopsis.
- Worth 4 dot test was performed in older children.
- Extra ocular movements were checked in all positions of gazes.
- Cycloplegic retinoscopy was performed in 10 years and under and non cycloplegic for older patients.Ophthalmic examination included, anterior segment examination using table mounted slit lamp or handheld slit lamp as per age of the child.
- Indirect ophthalmoscope was used for fundus examination of all patients.

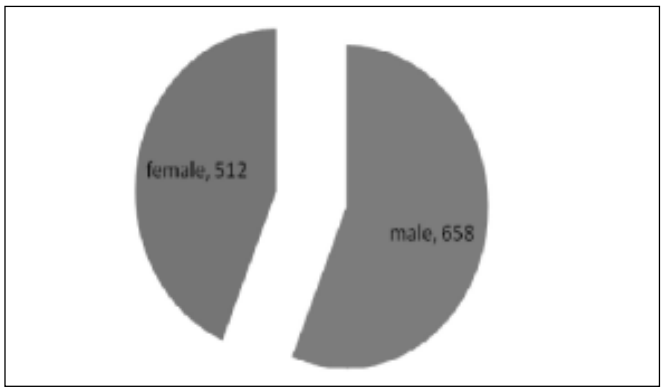
Inclusion criteria;
All patients that presented in Orthoptic and Pediatric clinic with visible manifest squint during the period of September 2008 to Jan 2012.
Exclusion criteria:
Those who had phorias, and not diagnosed as a manifest squint.

All analysis was conducted by using the statistical package for social sciences (SPSS) version

RESULTS

Overall 1170 patients were divided in 4 age groups. Table # 1, majority of patients39.23%, presented in age group 0-4 years, then 27.35% in 5-8 years age group. Squint Patients were classified in three groups in Table # 2. One group had horizontal deviations - 1074 (91.79%), that was most common form of strabismus,second group had vertical deviation-27(2.5%) and third group was patients who were pseudo

CHART I
GENDER DISTRIBUTION



This pia charts shows male female ratio

CHART II
ACCOMODATIVE ESOTROPIA

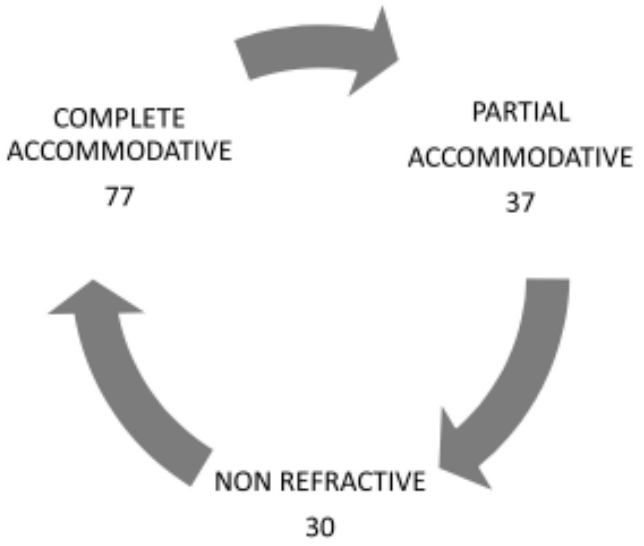


CHART III
CONCOMITANT CONSTANT ESOTROPIA

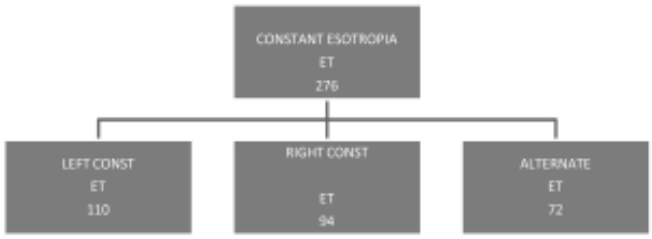


CHART IV
PARALYTIC ESOTROPIA

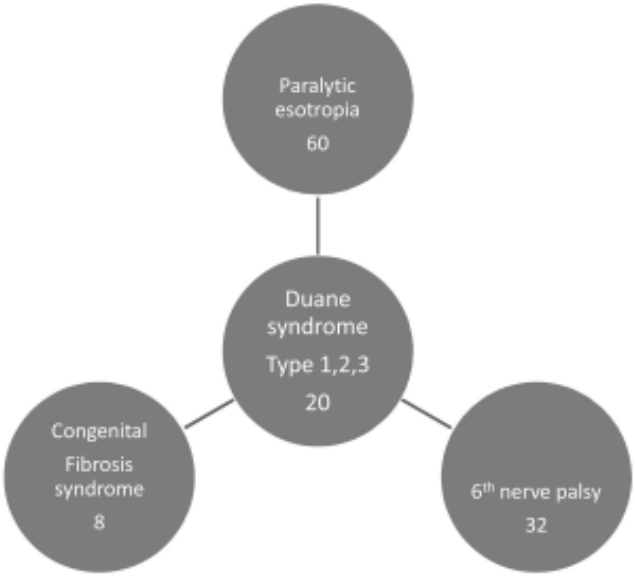
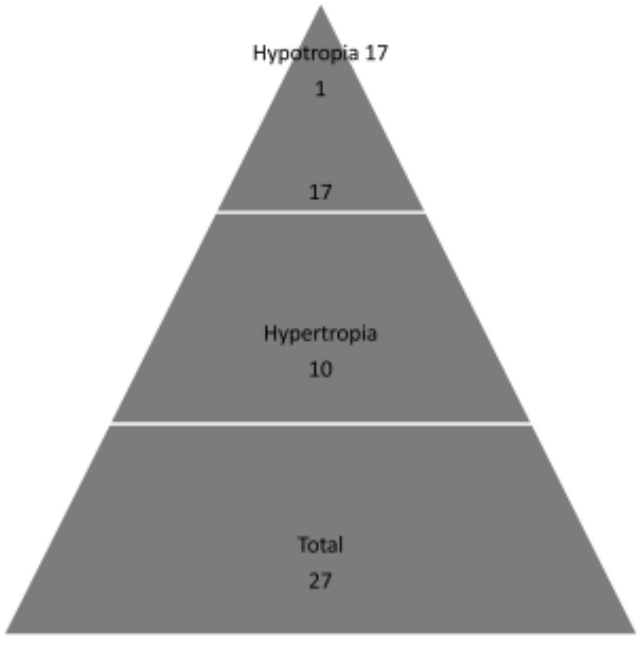


CHART V
VERTICAL DEVIATION



squint 69(5.89%). Table 3 shows types of esotropias and concomitant constant esotropia (ET) 23.58% is the most type of esotropia. Table 4 shows types of Exotropia seen in our study and constant (early onset) exotropia was most common20.8%.

Chart #1 shows gender distribution and shows male dominance. Chart 2 shows accommodative esotropia in which complete accommodative was more common 77 patients then partial accommodative 37 patients and non-refractive were least common 30 patients. In chart 3 we have shown constant comitant esotropia, left constant was predominant

110 patients then right constant 94 patients. Alternate esotropia was seen in72 patients. Paralytic esotropia is shown in chart 4 in which 6th N palsy was seen in 32 patients and was more common, Duane's Syndrome was 2nd in number 20 patients, congenital fibrorosis syndrome was least common 8 patients. Chart 5 shows that Hypotropia was seen in 17 patients than Hypertropia seen in only 10 patients.

DISCUSSION

One in fifty children have a squint[3] and up to 5% of the population have an amblyopic or lazy eye[3,4]. In view of their lifelong impact, good management offers substantial long-term benefits.

In our study horizontal strabismus were found as a more common type of strabismus 1074\1170 (91.79%) (table # 2).Esodeviations 698\1170 (59.63%) (table # 3)were more frequent than exodeviations 376 (32.06%). table # 4 . This is supported by Graham 60% of whose patients have eso-deviation and 20% have exo-deviation.[1]In the study by Yekta et al. (2010), the prevalence of exotropia and esotropia was 1.30 % and 0.59 %, respectively.[5]

In our study constant esotropia(23.58%)was found to have developed between the ages of 2 and 4 years,Infantile esotropia was 161\1170 (13.76%.) This incidence compared well with another study where the incidence of infantile esotropia varies from 8% of childhood esotropia[6] and in 1 in 400 livebirths.[7]

Some evidence suggests that early surgery in infantile esotropia is carries a better binocular outcome.[8]

In our study, the magnitude of accommodative esotropia was (12.31%), which is straightened by correcting the associated hypermetropia. On other hand population based survey conducted by Louwagie CR describes the incidence of accommodative esotropia was 36.4% higher then infantial esotropia 8%[7],reason could be due to our study is hospital based study and earlier presentation of infantile esotropia as compared to accommodative esotropia. Out of all accommodative esotropia, partial accommodative esotropia were 37\1170 (3.16%) this compared with same study by Louwagie showed partial accommodative esotropia incidence at 10% [7]. The association between hypermetropia and the development of strabismus is well documented.[9,10,11]

The incidence of strabismus increases to 17.6% (vs 3–4%) when a positive family history is elicited.[9] The risk of developing esotropia in patients with a positive family history is increased four-fold in the presence of hypermetropia.[10] Rosner and Rosner showed that given superficial instruction, parents can detect 66–76% strabismus.[12,13,14]
In our study, the sensory esotropia was found in 57\1170 (4.87%), and slightly higher percentage of paralytic esotropia at 60\1170 (5.12%), although the difference is not significant. This compares well with a study by Greenberg et al. (1985-1994), who describe the incidence and types of childhood esotropia in a population of 385 children.They found sensory esotropia in 6.5 % and paralytic esotropia in 6.5 %.[6]

In our study, Exotropia was found to be the second most common form of Horizontal strabismus, although it appears less frequently than esotropia. This statistics is supported internationally,where the approximate ratio of esotropia ET to exotropia XT is 3:1.[15,1,16] However, the National Health Surveyof individuals 4?74 years of age, found a higher prevalence of exotropia(2.1%) than esotropia (1.2%) in the U.S. population. This difference is probably related to the fact that the overall prevalence of strabismus in persons 55?75 years of age (in whom exotropia is more common) is 6.1percent—substantially greater than for very young children 1?3 years of age (1.9%) or children and adults 4?54 years of age (3.3%).

In the current study, the constant or congenital was found to be the major type of the exotropia 244\1170 (20.85%)

However, Hunter et al state that no published study provides a rationale for this restrictive definition.[15] In their study, they evaluated differences between infants, aged younger than 1 year, with constant exotropia versus intermittent exotropia at presentation.[15] They found that "half of infantile exotropia patients may present with intermittent exotropia, with similar clinical outcomes regardless of presentation

A study conducted by Moore, who limited his subjects to healthy infants, (congenital) exotropia was reported at 0.003%. This is quite low than our study.This could be because our study includes all children presenting with constant or congenital exotropia,and not just limited to healthy subjects. Several authors believe that intermittent XT is more prevalent than constant exodeviations,[16]but our data does not correlate with these findings.In our study intermittent exotropia was found at 93\1170 (7.94%) lower than constant exotropia.This could be due to constant exotropia creating more visible cosmetic disability than Intermittent XT.As a result, the parents bring their child to the hospital for treatment quickly.

Sensory exotropia In our study sensory exotropia found 25\1170 subjects (2.13%) not very much high as compared to other types of horizontal strabismus, similarly paralytic exotropia were 14\1170 (1.19%).

The present study also clarified the magnitude of vertical strabismus 27\1170 (2.5%). (chart # 5). A study conducted by Akiko Tanaka, et al showed a high prevalence of vertical strabismus in patients with pathologic myopia(16.2%).[17] This

is quite high as compared to our study.Although epidemiology studies of vertical strabismus are rare, Vertical heterotropia in healthy Japanese aged over 60 years was reported as 6%.[18] In our study, there number is not too high.It could be due to our study being a hospital based study and it includes all types of strabismus.

CONCLUSION

This study had shown the magnitude of manifest strabismus to be a significant ocular problem. Esotropia was found the most common form of strabismus. Anisometropia and a positive family history, are risk factors for amblyopia and strabismus. (not the objective of this paper).Untreated strabismus leads to functional and psychological disturbances on the patient and their family, affecting the quality of vision and life.(not the objective of this paper)

CONFLICT OF INTEREST

There is no conflict of interest

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CONTRIBUTIONS OF AUTHORS

* contributions to the conception and design of the work Acquisition, analysis and interpretation of data for the work. Critically revising the main script Final approval of the version to be published. Agreed to be accountable for all aspects of work

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